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2. History and civics. What the government of nations may illustrate. Civics used as an aid to self-government. The industrial life of the community and its relation to the order of the schoolroom. Excursions. How to conduct them.

3. Literature and reading. What determines the selection? Effect of dramatic reading. (a) Upon the emotions. (b) Upon orderly expression of the emotions. (c) Upon thinking. (d) Upon doing.

4. Power of music. (a) Brings about harmonious emotion and actions. (b) Selection of songs in their relation to thought. Relation to subjects of study.

5. Expression. Necessity for its use. Kinds. Acquirement of skill. Preparation and care of material used. Order of conducting such exercises.

6. Gymnastics. In relation to order. Military discipline. Effect of co-ordination upon children.

V. The Daily Program.—Proportion of time allotted to the different subjects of study. The difference between a flexible program and a fixed one. Grouping of pupils. Basis of promotions.

VI. Responsibility.—Each for all and all for each. Care of personal and public property. Housekeeping. Hygienic and æsthetic condition of school premises and neighborhood.

VII. Relation of the School to the Community.—Parents' receptions. Children's parties. School entertainments, clubs, etc. The teacher as a citizen of the community.

Series of Six Lessons on the Study of Textile Fabrics

Clara I. Mitchell

With Notes and References for Teachers

I. Study of Samples of Textile Fabrics.—Classification with regard to use; carpets, upholstery, overcoatings, cloakings, men's suitings, women's dress material, cotton fabrics, narrow webs, gauzes, plain lines fabric, household linens, silks, velvets, and laces. Fitness for use dependent upon kind and quality of material, manufacture, weight warmth, absorptive power, design, color, and cost.

Tests for Textile Fabrics.—Ignition: Boiling with caustic soda. Boiling with mercurous nitrate. Boiling with nitric acid. Immersing in mixture of sulphuric and nitric acid, then washing. Moistening with stannous chloride solution, drying and heating. Treating with solution of sodium plumbite.

Tests for Differences between Cotton and Linen.—Immersing in concentrated sulphuric acid for two minutes, washing with water and ammonium hydrate and drying. Treating with alcoholic solution of madder. Treating with alcoholic solution of madder cochineal. Immersion in olive oil. Treating with alcoholic solution of rosolic acid, then with concentrated ammonium hydrate. Iodine and sulphuric acid solution. Ammoniacal solution of copper salts.

II. Qualities to be Considered.—Length of fiber, adaptation to spinning and weaving,

strength, evenness, soundness, durability, fineness, springiness, luster, susceptibility to dyes.

III. Qualities Dependent upon Condition of Culture.—Study of soil, climate, care, and industrial conditions suited to the highest culture of (1) wool, (2) silk, (3) linen, (4) cotton, (5) hemp, (6) jute, (7) ramie.

Areas of production of each. Markets. Centers of manufacture. Transportation. Indoor culture of flax and cotton plant. Raising silkworms for study. Excursions to sheep farms. Pictures of sheep ranches; shearing. Flax and cotton growing. Silk culture. Hemp, jute, and ramie culture.

IV. Manufacture.—All textile fabrics made by the interlacing of threads. Simplest process probably. Basket weaving as invented by primitive man. Discoveries growing out of necessity and accident. Probable steps to be followed out by children; mat weaving of rushes and twigs; beating of bast fibers for clothing; use of flax plant; discovery of fiber; making thread of fiber; thread of wool; invention of primitive spindle and distaff; use of frames for holding warp; modification of needle into shuttle; use of comb; invention of harness or heddles; gradual perfection of loom. Perfection of spinning machinery from spindle and distaff, hand cards and wheels to complicated carding and spinning machinery. Excursions

to mills and factories. Pictures. Collections of fibers, process cases. Models of machinery invented by children or imitated by them.

V. Present Process of Manufacture Compared with Primitive Beginnings and Intermediate Steps.—Wool: Sorting, scouring, bleaching, teasing, burring, mixing, oiling, carding (in case of worsted), spinning, dyeing, weaving, finishing. Silk: Reeling, twisting, discharging, weaving, bleaching, dyeing of standard cocoons; spinning of inferior cocoons into "spun silk." Cotton: Ginning, baling, picking, lapping, carding, spinning, dyeing, weaving, boiling out, bleaching. Linen: Retting, drying, grassing, bleaching, breaking, scutching, scraping, spinning, dyeing, weaving. History—Textile skill and knowledge of neolithic man. Lake dwellers, North American Indians, primitive races of Africa and Polynesia of the present time. Ancient Egypt, Greece, Peru, Mexico, India, Persia and China. Mediæval tapestries. Gobelin tapestries. Modern textile fabrics, characteristic of England, Scotland, Ireland, France, United States, and the Oriental countries. Visits to shops, museums, libraries, Art Institute.

VI. Weight. Study of Yarns.—Examinations of single count yarns, two-ply and three-ply. Sense tests in judgment of counts. Adaptation of different counts to different uses. Dyeing of yarns for use in weaving. Natural dyes; turmeric, orchil, cudbear, indigo, fustic, redwoods, cochineal, madder. Extract obtained by boiling for one hour in water. Formula for use of turmeric, 4% (of weight of yarn) sulphuric acid and 20% Glaubers salts dissolved in water at 160° F.; skein to be entered and worked in this bath at same temperature for 45 minutes. Washed after dyeing. Cochineal dissolved in water and used directly. Cudbear, orchil, indigo extract, prepared as above; skein to be boiled for 20 minutes, then washed.

Redwoods and madder dissolved with 3% of bichromate of potash; cooled to 160° F., 1½% of cream of tartar added; skein entered and boiling point reached in 30 minutes; boiled for one hour.

Wool Dyes.—Prepared as above in case of turmeric. Skeins entered at 160° F., boiling point reached in 20 minutes. Boiled from 20 to 30 minutes.

Names of dyes and manufacturers:

Pierie acid, yellow, Pickhardt & Kuttroff.

Fast yellow, Pickhardt & Kuttroff.

Orange, Nos. 1, 2 and 3, Sykes & Street.

Milling red, Matheson.

Fast red, Sykes & Street.

Crystal 6 R., scarlet, Matheson.

Victoria blue, Pickhardt & Kuttroff.

Acid violet, blue, Pickhardt & Kuttroff.

Formyl violet, blue, Matheson.

Malachite green, Sykes & Street.

Fast acid, green, Elberfeldt.

Naphthol black, Matheson.

Acid magenta, purple, Read, Holiday & Co.

Wool to be thoroughly wet before dyeing.

Cotton Dyes.—Bath prepared with 15% common salt and from 2 to 4% dye.

Benzo purpurin 4 B., red, Elberfeldt.

Diamine scarlet 3 B., red, Matheson.

Theo flavin S., yellow, Pickhardt & Kuttroff.

Diamine yellow, Matheson.

Mikado orange, Muhlheim.

Benzo azurin, blue, Elberfeldt.

Diamine violet N., Matheson.

Mikado brown G., Muhlheim.

Diamine bronze, brown, Matheson.

Union black, Matheson.

Diamine green, Matheson.

Berlin aniline dyes for both wool and cotton.

Cotton to be thoroughly wet before dyeing and kept wet till entered into bath. Wetting accomplished by boiling in water, or water and small quantity of caustic soda. Better method: Soak for five minutes in hot water to which has been added fankhausine (1c.c. to every pint of water used.)

NOTE.—Fankhausine to be bought of Nashoba Mfg. Co., Boston.

Mixed, compounded, and lightly dyed colors best for use.

Proposed course in sewing: To embrace only such articles as are needed and used in the children's daily life.

Dust cloths, wash cloths, towels, caps, aprons, napkins, desk covers, sewing bags, book bags, book covers, iron holders, stove holders, hot-dish holders, oversleeves, pen wipers, curtains, sheets and pillow cases for the playhouse. Clothing for dolls for use in games, plays, or history lesson. Garments for children.

Teaching of technique of sewing as work demands it. Stitches, use of utensils and proper habits taught only as need arises, not as isolated drill. All patterns to be discussed, planned, and drawn. Steps to be observed and taught as needed: Proper position of body in sewing, correct holding and using of

tools, basting, hemming, plain machine stitching, over-casting, over-seaming, running, back-stitching, half back-stitching, plain fell, French fell, gathering, darning, patching, button-hole making, gusset-making, feather-stitch, hem-stitch.

Embroidery stitches: Cross stitch, split stitch, outline stitch, button-hole stitch, rope-stitch, French knot, chain stitch, herring-bone stitch, satin stitch, darning, embroidery stitch, couching.

BOOKS FOR REFERENCE.

Textiles: *Textile Chemistry*, J. Merritt Matthews, Philadelphia Textile School; *Woolen and Worsted Cloth Manufacture*, Roberts Beaumont; *Mechanism of Weaving*, T. W. Fox; *Elements of Cotton Spinning*, Morris & Wilkinson; *Cotton Weaving*, Richard Marsden; *Weaving*, Posselt; *Cotton Spinning*, Nasmith; *Cotton Spinning*, Taggart; *Cotton Spinning*, Brooks; United States Government Bulletin, No. 33, *The Cotton Plant*; United States Government Reports on *Useful Fibres*; *Flax*, Peter

Sharpe; *Silk*, Jonathan Ruegg; *Instruction Book in the Art of Silk Culture*, Women's Silk Culture Association of United States; *Silk and Silk Dyeing*, Hurst; *Structure of Wood Fibre*, Bowman; *Embroidery*, N. G. Paulson Townsend; *Textile Dyeing*, Berlin Aniline Works, Philadelphia; *The Textile Industries*, William R. Bagnall; *Dyeing of Textile Fabrics*, Hummell.

Reports of United States commissioners to the Paris Exposition, 1878, Vols. I. and III.; Smithsonian Report, No. 6; *Oriental Carpets*, Royal Museum, Austria.

History: *Primitive Culture*, Tylor; *Early History of Man*, Tylor; *Man before Metals*, Joly; *Great Paces of Mankind*, *Woman's Share in Primitive Culture*, C. T. Mason; *Lake Dwellings of Switzerland and Other Parts of Europe*, Keeler; Encyclopedia Britannica, Textiles, Tapestry, Weaving Rugs.

NOTE.—The syllabus of Miss Mitchell's work in color and design in Textile Fabrics will be found under the Department of Art.

Kindergarten Round Tables

Anne E. Allen

These round tables will be divided into two sections, one for the discussion of the work with the children as observed in the morning kindergarten; the other for the playing of games in order to discuss, if possible, the best plays for little children. Under the first section, such headings as the following may be suggestive in leading to the most helpful discussion:

1. Social value of such plays and games as have been observed.
2. Whether value is direct or indirect; vital or otherwise.
3. Effect upon character of such work.
4. Has it an end worth striving for?
5. Free plays vs. prescribed plays.
6. Disciplinary value of games.

7. Question reasons for order of occupations, form of presentation, and educative value.

8. Shall we follow the interests of children, and, if so, how far? Should we ever follow their whims?

9. Shall we study the development of the children themselves or the logical sequence in presentation of the materials used?

10. Question program as a whole.

In the second section games will be played and criticised from the standpoint of their pedagogical usefulness:

a. Romping games. *b.* Unrelated kindergarten circle games. *c.* Sense games. *d.* Pantomime. *e.* Gymnastic games and rhythmic movements. *f.* Games involving dramatic expression.